Scoring Form

Project: NAEP **Grade**: 8 **Subject**: Science

Item: F2S11_06 Relationship size of particles and rate of water

Scorer Name:_____ **ID#**: _____ **Date**: _____

P1	***Reader Score***	*Actual Score*
1		
2		
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P2	***Reader Score***	*Actual Score*
1		
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		%

Contents

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NAEP: The One Stop Shop for Teachers

2:00 PM-3:50 PM
MS 204
Teachers will gain hands-on experience with released items specifically learning how to: create assessments, score items, and map items. Lastly, teachers will learn how NAEP science frameworks can be paralleled to NGSS and learn how MT students performed on released items.

Item: Relationship size of particles and rate of water……p.1

Questions 6–8 refer to the following information.

Most soils are a mixture of particles of different sizes. Water moves through soil at different rates, depending largely on how much of each size particle makes up the soil. The table below shows the percentage of each size particle in five different soils (A, B, C, D, E) and the rate at which water moves through each of the soils.

RATE OF WATER MOVING THROUGH DIFFERENT SOILS

Soil	Percentage Largest Particles (%)	Percentage Medium-Sized Particles (%)	Percentage Smallest Particles (%)	Rate of Water Draining Through Soil (cm/hr)
A	100	0	0	21
B	85	10	5	6.1
C	40	40	20	1.3
D	20	65	15	0.69
E	0	0	100	0.05

VC298869

6. Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

VC298870

7. Explain why the size of the soil particles affects the rate at which water moves through the soil.

Item: Relationship size of particles and rate of water……p.2

Questions XX–XX refer to the following information.

Most soils are a mixture of particles of different sizes. Water moves through soil at different rates, depending largely on how much of each size particle makes up the soil. The table below shows the percentage of each size particle in five different soils (A, B, C, D, E) and the rate at which water moves through each of the soils.

RATE OF WATER MOVING THROUGH DIFFERENT SOIL TEXTURES

Soil	Percentage Largest Particles (%)	Percentage Medium-Sized Particles (%)	Percentage Smallest Particles (%)	Rate of Water Draining Through Soil (cm/hr)
A	100			21
B	85	10	5	6.1
C	40	40	20	1.3
D	20	65	15	0.69
E			100	0.05

Content Area	Earth and Space Science		
Content Topic - Subtopic	Earth Structures - Properties of Earth Materials		
Content Statement	E8.6: Soil consists of weathered rocks and decomposed organic material from dead plants, animals, and bacteria. Soils are often found in layers with each having a different chemical composition and texture.		
Science Practice	Using Scientific Inquiry		
Cognitive Demand	Knowing How		
Achievement Level			

Item:

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

Anchor Set……p.1

Paper	Ref #	Score	Notes
A-1	(256337)	3	Response correctly describes the relationship between size of soil particles to rate of water passing through the soil and includes supporting data from the table: . . . *more large particles, water will drain more quickly. . . Soil A has 100% larger . . . water moves at 21 cm/hr . . . Soil E, which has 100% smaller particles . . . moves at 0.05 cm/hr.*
A-2	(256401)	3	Response correctly describes the relationship between size of soil particles to rate of water passing through the soil and includes supporting data from the table: *The larger the particles in the soil, the faster the water moves through. Soil A had 100% large particles and the water moved faster through Soil A.*
A-3	(256311)	3	Response correctly describes the relationship between size of soil particles to rate of water passing through the soil and includes supporting data from the table: *moves slower through little particles (E) moves faster through big particles (A).*
A-4	(256476)	2A	Response correctly describes the relationship between size of soil particles to rate of water passing through the soil but does not include supporting data: *The larger the partioles the faster water moves the smaller the particles the slower water moves.*
A-5	(256375)	2A	Response correctly describes the relationship between size of soil particles to rate of water passing through the soil but does not include supporting data: . . . *smaller the particles sizes . . .the slower water will move.*
A-6	(256485)	2A	Response correctly describes the relationship between size of soil particles to rate of water passing through the soil but does not include supporting data: *The larger the soil particles, the faster water moves through the soil.*

Anchor Set ……p.2

Paper	Ref #	Score	Notes
A-7	(256432)	2B	Response provides a correct statement using data in the table, but does not describe the relationship between size of soil particles and rate of water: . . . *soil A 100% of the largest particles it moves through the water at a rate of 21 cm. per hour . . .soil E 100% of the smallest particles it drains through the water at 0.05 cm. per hour.* The listing of two soil types only is an implied comparison of the water rates. Also, the data is chosen to address the size/rate relationship.
A-8	(256332)	2B	Response provides a correct statement using data in the table, but does not describe the relationship between size of soil particles and rate of water: *In soil A the rate of water more than soil E.*
A-9	(000018)	1	Response provided is incorrect: . . . *bigger the soil particle . . . slower it moves. . . smaller it is, the quicker it moves.* Water would move quicker with bigger particles and slower with smaller particles.
A-10	(256333)	1	Response provided is incorrect: . . . *smaller amount of particles the faster rate, and the largest amount of particles the slower the rate.* Amount of particles is not the same as size of particles.
A-11	(256426)	1	Response provided is inadequate: *In A the water runs 21cm/hr. In B it runs 6.1 cm/hr. . . In e it runs 0.05 cm/hr.* This is a restating of the last column of the table provided for this item. It does not describe or imply any understanding of size of particles and/or rate of water.
A-12	(000007)	1	Response provided is inadequate: *The soil is 100%, 0 medium, 0 small, and the draining through soil is 21.* This is a restating of the data for soil A from the table. It does not describe or imply any understanding of size of particles and/or rate of water.

Anchor Set 3……p.1

3

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

If there are more larger particles, the water will drain more quickly. Soil A has 100% larger particles, so water moves through the soil more rapidly than Soil E, which has 100% smaller particles. Soil A's water moves at 21cm/hr, and Soil E's water moves at 0.06cm/hr.

3

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The larger the particles in the soil, the faster the water moves through. Soil A had 100% large particles and the water moved faster through Soil A.

3

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

moves slower through little particles (E) moves faster through big particles (A)

Anchor Set 2A ……p.2

2A

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The larger the particles the faster water moves the smaller the particles the slower water moves.

2A

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The larger the soil particles, the faster water moves through the soil

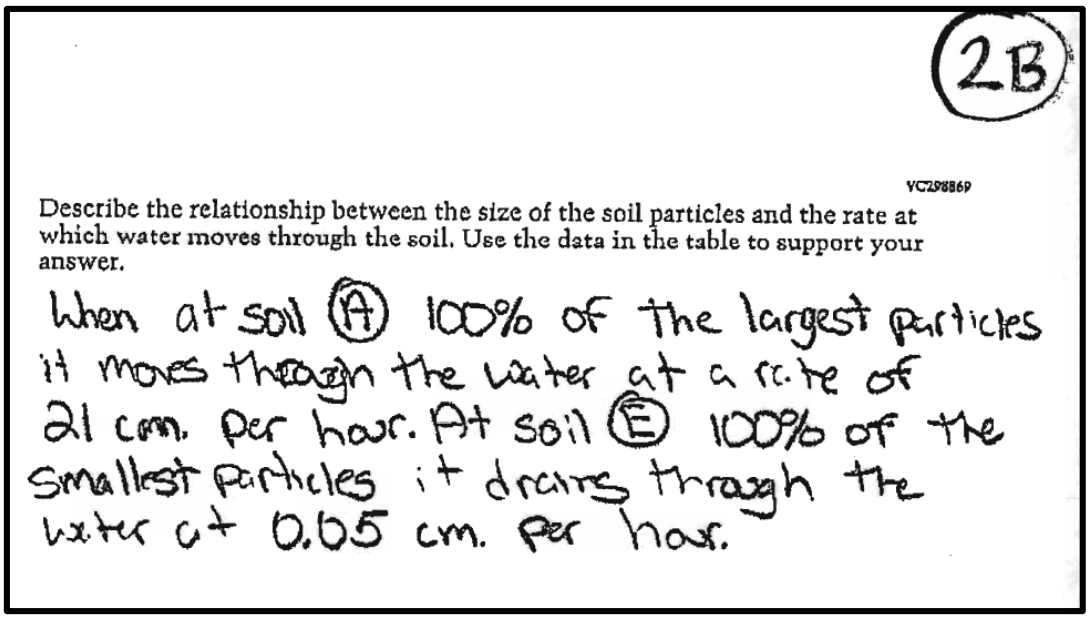
2A

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The smaller the particle sizes in the soil are the slower water will move through it.

Anchor Set 2B……p.3

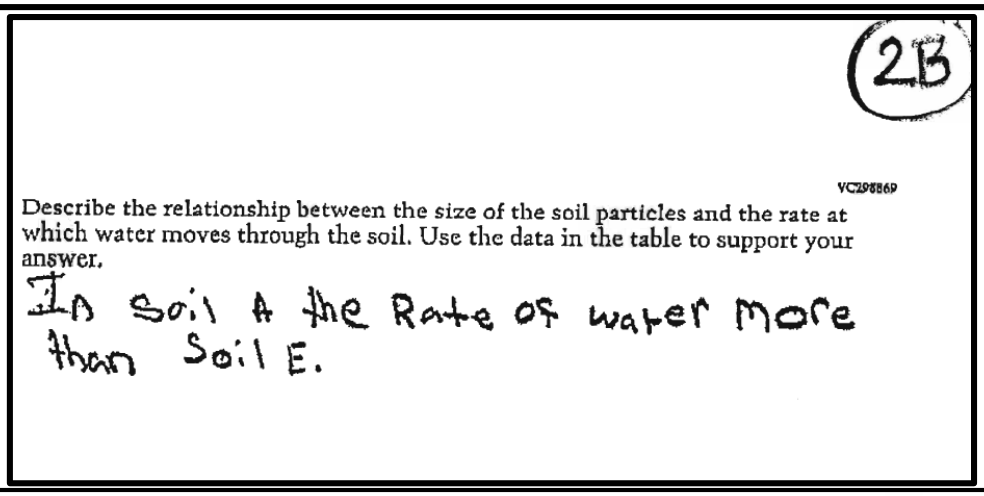


2B

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

When at soil (A) 100% of the largest particles it moves through the water at a rate of 21 cm. per hour. At soil (E) 100% of the smallest particles it drains through the water at 0.05 cm. per hour.

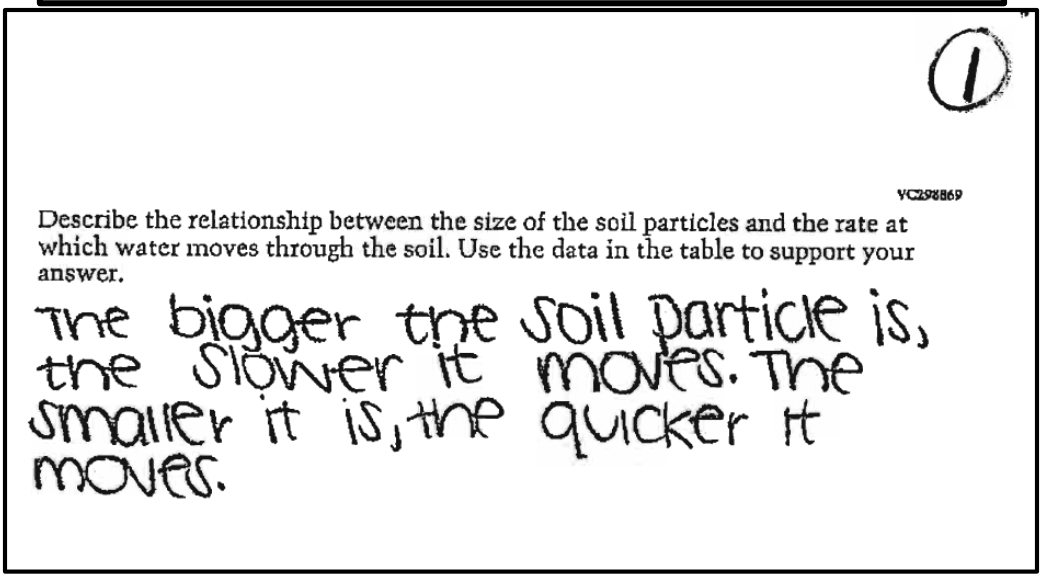


2B

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

In Soil A the Rate of water more than Soil E.



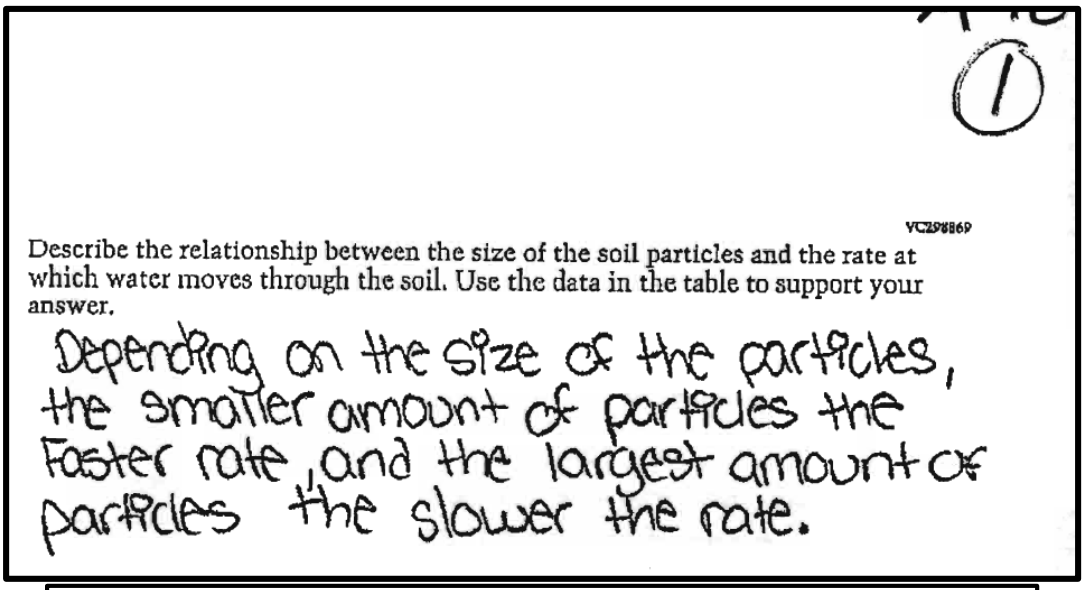
1

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The bigger the soil particle is, the slower it moves. The smaller it is, the quicker it moves.

Anchor Set 1……p.4

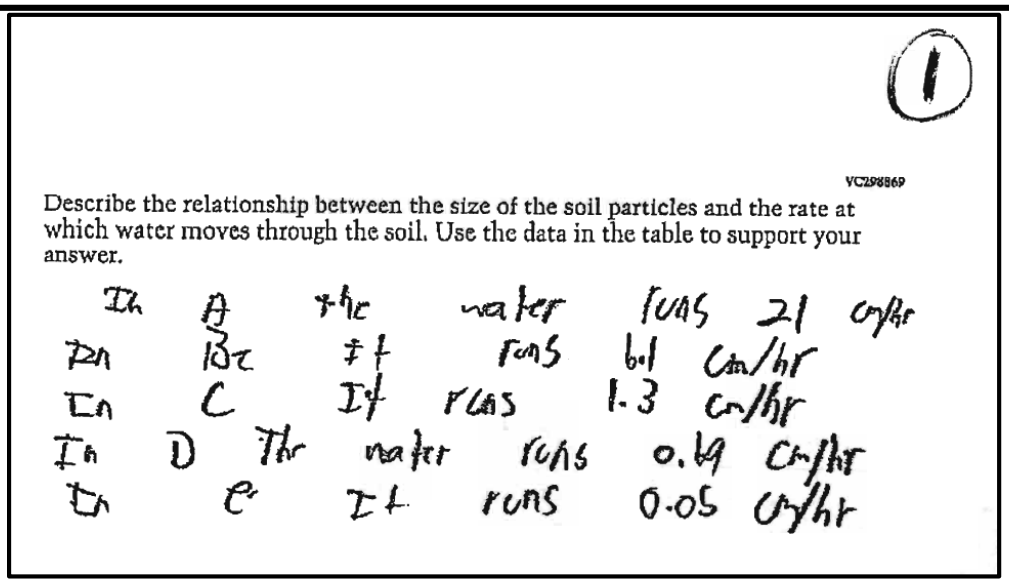


1

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

Depending on the size of the particles, the smaller amount of particles the faster rate, and the largest amount of particles the slower the rate.

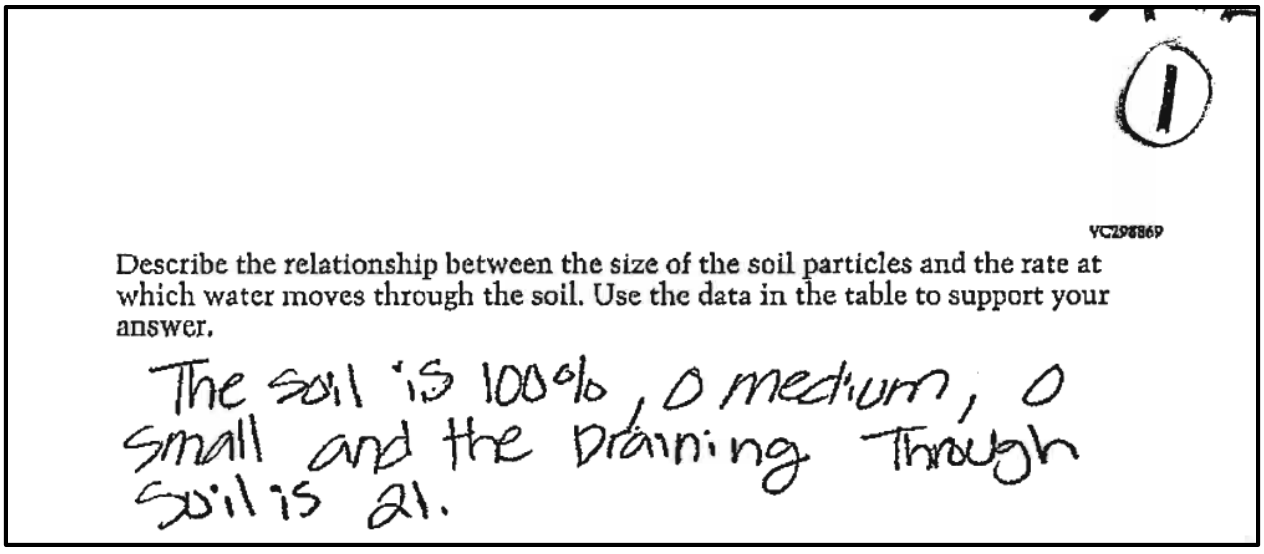


1

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

In A the water runs 21 cm/hr
In B it runs 6.1 cm/hr
In C It runs 1.3 cm/hr
In D The water runs 0.69 cm/hr
In E It runs 0.05 cm/hr



1

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The soil is 100% 0 medium, 0 small and the Draining Through soil is 21.

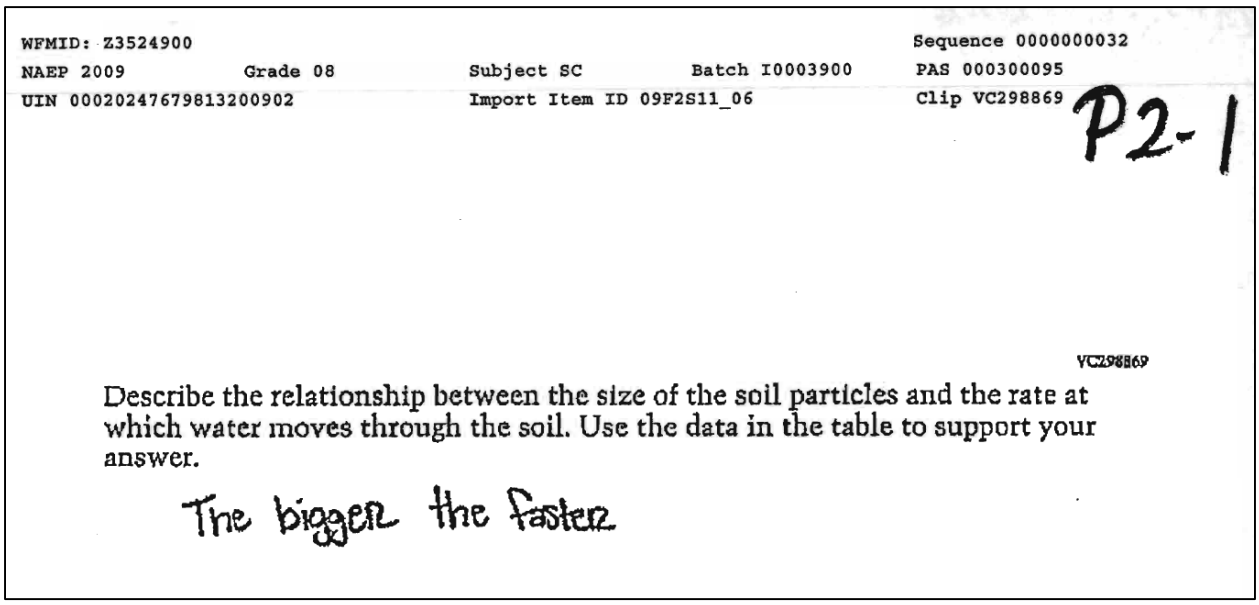
Practice Set 1 Score Guide……p.1

	Code	Description
Complete	3	Student response correctly describes the relationship between the size of soil particles and the rate at which water passes through soil using data from the table for support. Student response may or may not include quantitative information in the comparison. Note: – Acceptable synonyms for "faster" include: highest, most, quicker. – Unacceptable synonyms for "faster" include: best. For example: • The larger the particles the faster the water travels through. For example, water passes through soil A, which has large particles at 21 cm/hr, while water only moves at 0.05 cm/hr through soil E, which has the smallest particles. • Water moves the slowest through soil E (0.05 cm/hr), which has very small particles and the fastest (21 cm/hr) through soil A, which has the largest particles. • That the bigger the particle the faster it travels because soil A at a 100 and the largest particle travels a 21 cm/hr where as soil D at 20 travels at 0.69 cm/hr. • Water moves fastest through soil with large particles (soil A) and slowest through soil with small particles (soil E). • The more small particles contained in the soil, the slower the water passes through it. Soil E has the most small particles and the slowest rate.

Practice Set 2 Score Guide Continued……p.2

Partial	2A	Student response correctly describes the relationship between particle size and rate of water movement, but does not refer to the data from the table for support. For example: • The larger the particle the higher the rate of water moving through the soil. The smaller the particle is then the least rate of water moving will appear. • The more small particles contained in the soil, the slower the water runs through it. • The water runs through soil with the largest particles fastest.
	2B	Student response provides a correct statement using data in the table that addresses the size/rate relationship, but does not establish the relationship between the size of soil particles and the rate at which water passes through soil. The response includes some kind of comparative language (explicit or implied) that indicates an understanding of the data. Note: Acceptable comparative language includes: fast(er), slow(er), big(ger), large(r), small(er), quick(er). For example: • Water moves fastest through soil A and slowest through soil E. • The water runs through the soil with 100% large particles at 21 cm/hr and through the soil with 100% small particles at 0.05 cm/hr. • The size of the soil particles of soil A is faster because the rate of it is 21 cm/hr. • The soil A moves quicker through the water at 21 cm/hr. And the soil E moves slower at .05 cm/hr.
Unsatisfactory/Incorrect	1	Student response is inadequate or incorrect. The response may repeat data from the table, but describes an incorrect relationship between particle size and rate. For example: • The smaller the particles, the faster the water moves through them. • The relationship between the size of the soil particles and the rate at which water move through the soil is that both have a good rate. • The more particles you have in the soil the more rate of water is moving through the soil. • The more texture the soil has the faster the water moves through it.

Scoring Real CR Response Items…Practice Set 2 Repsonses….p.1



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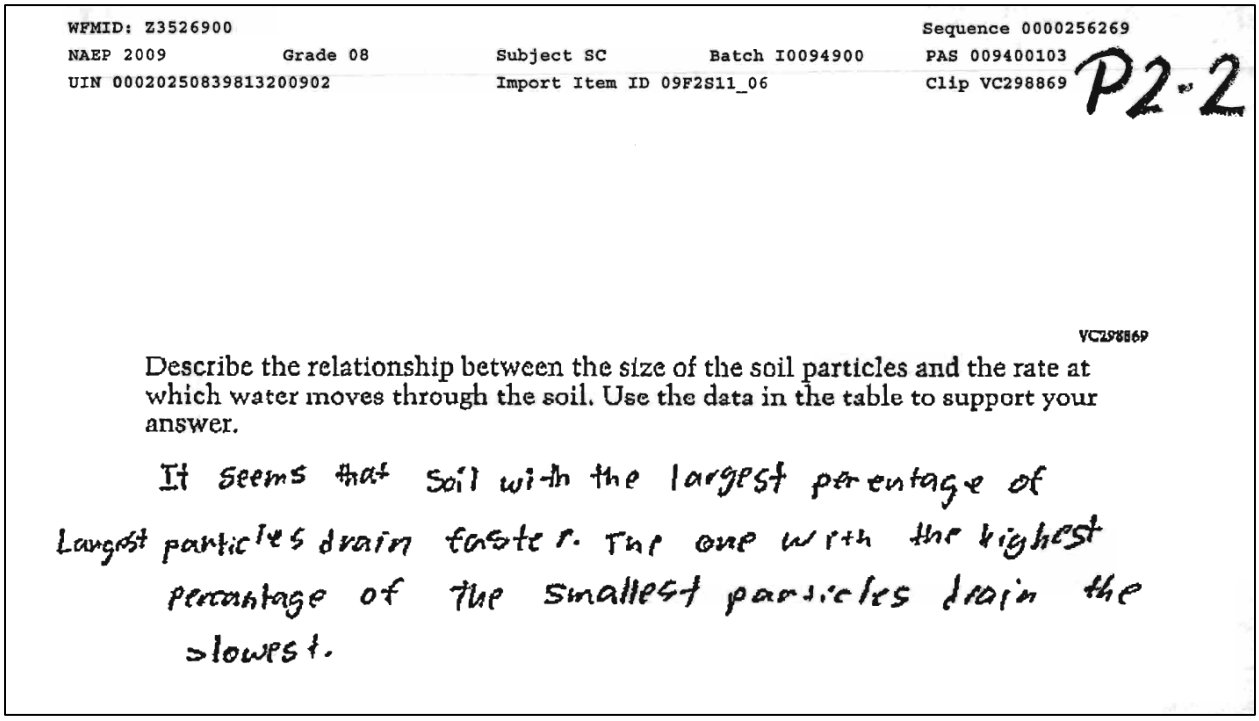
P2-1

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The bigger the faster



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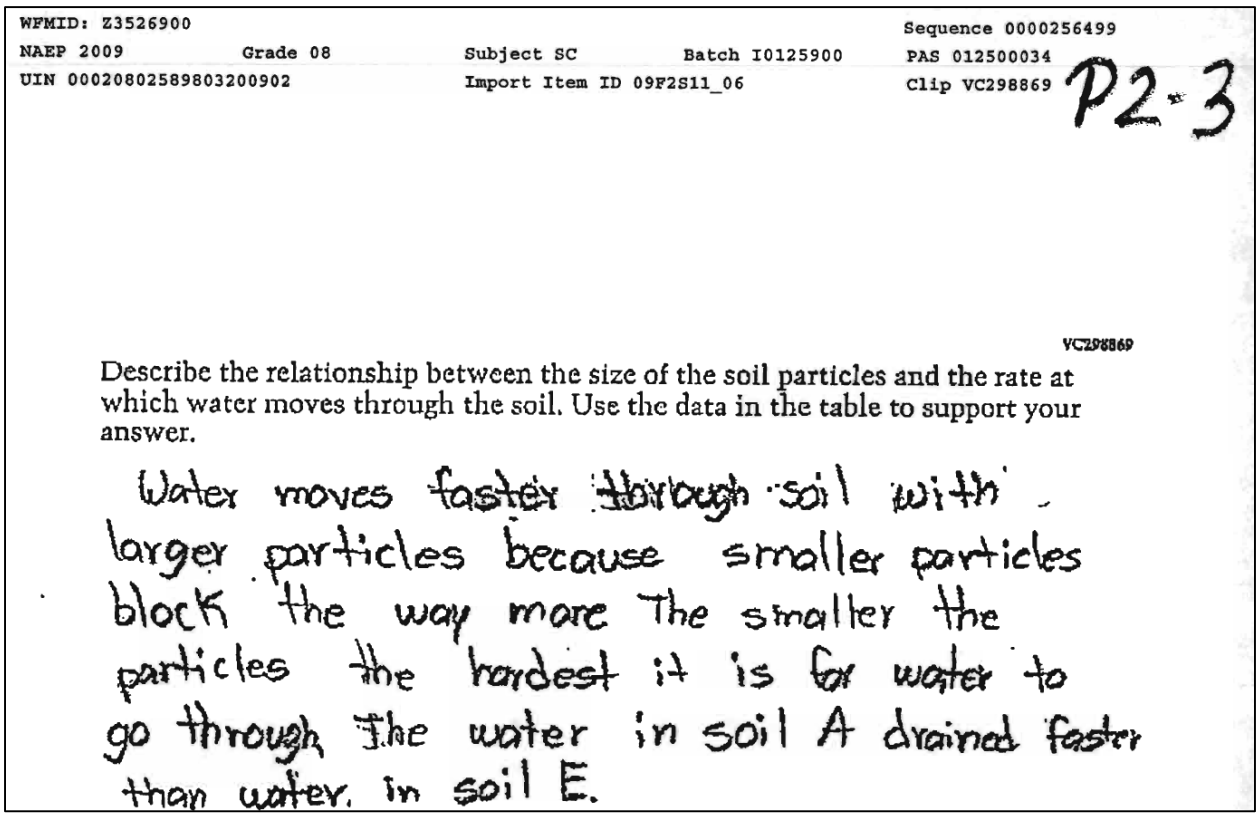
P2-2

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

It seems that soil with the largest percentage of Largest particles drain faster. The one with the highest percentage of the smallest particles drain the slowest.

Practice Set 2 Repsonses….p.2



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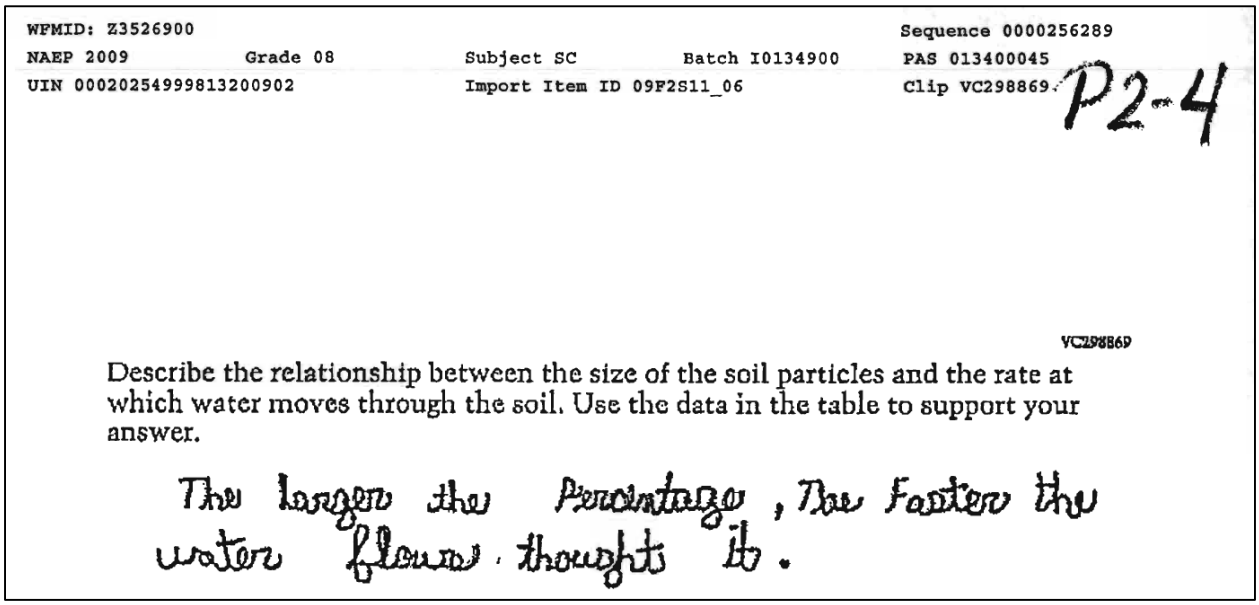
P2-3

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

Water moves faster ~~thorough~~ through soil with larger particles because smaller particles block the way more The smaller the particles the hardest it is for water to go through The water in soil A drained faster than water in soil E.



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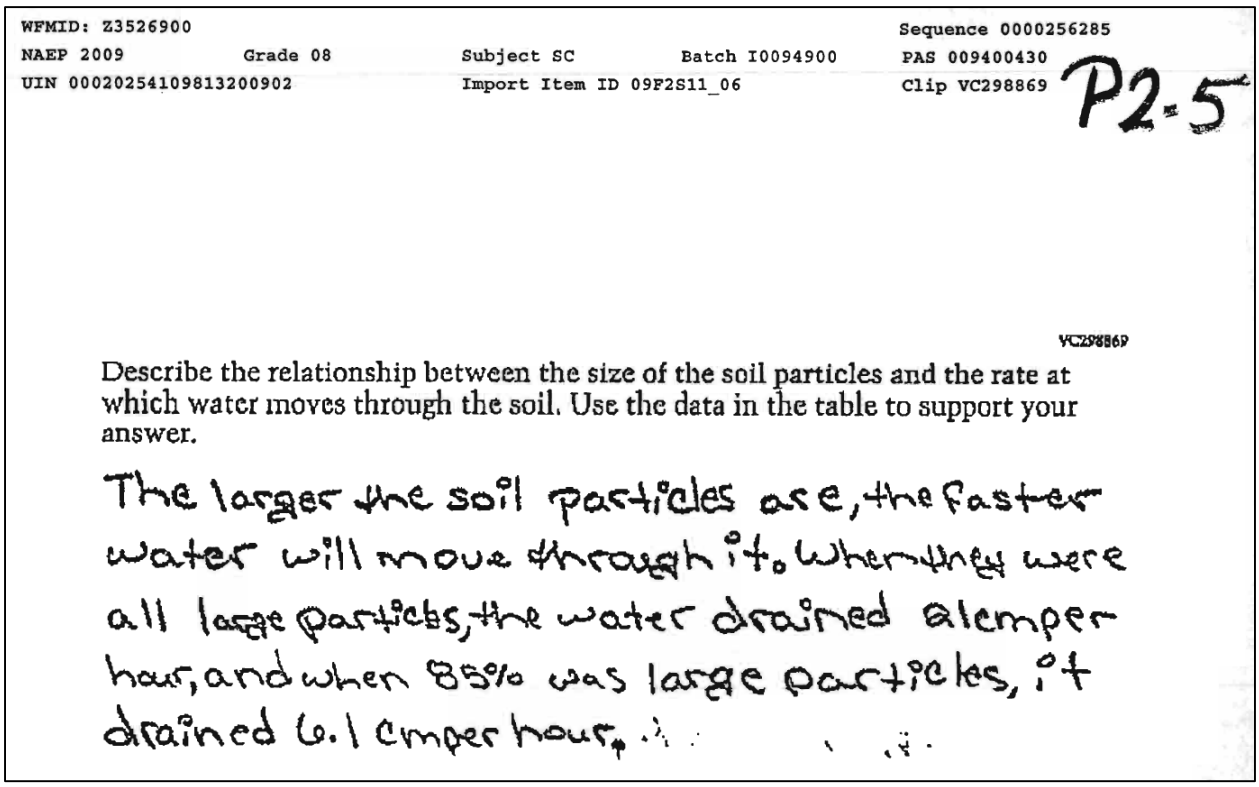
P2-4

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The larger the Percentage, the Faster the water flows thoughts it.

Practice Set 2 Repsonses ….p.3



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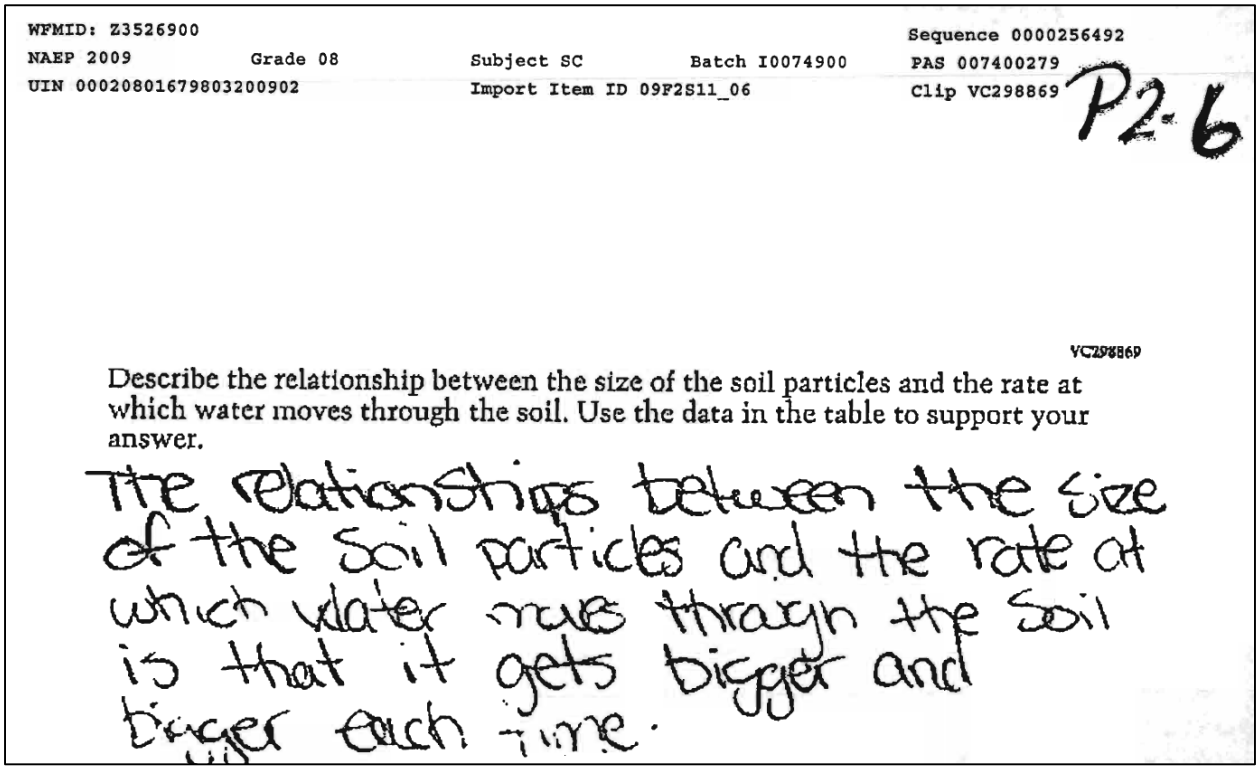
P2-5

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The larger the soil particles are, the faster water will move through it. When they were all large particles, the water drained a lemper hour, and when 85% was large particles, it drained 6.1 cmper hour.



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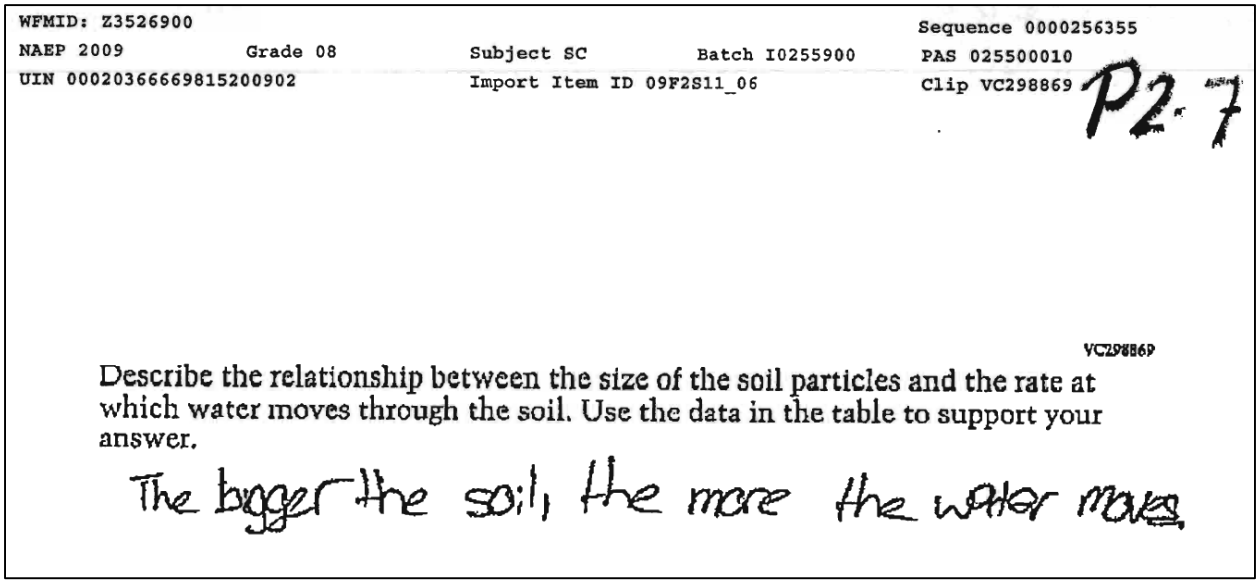
P2-6

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The relationships between the size of the soil particles and the rate at which water runs thraugh the soil is that it gets bigger and bigger each time.

Practice Set 2 Repsonses ….p.4



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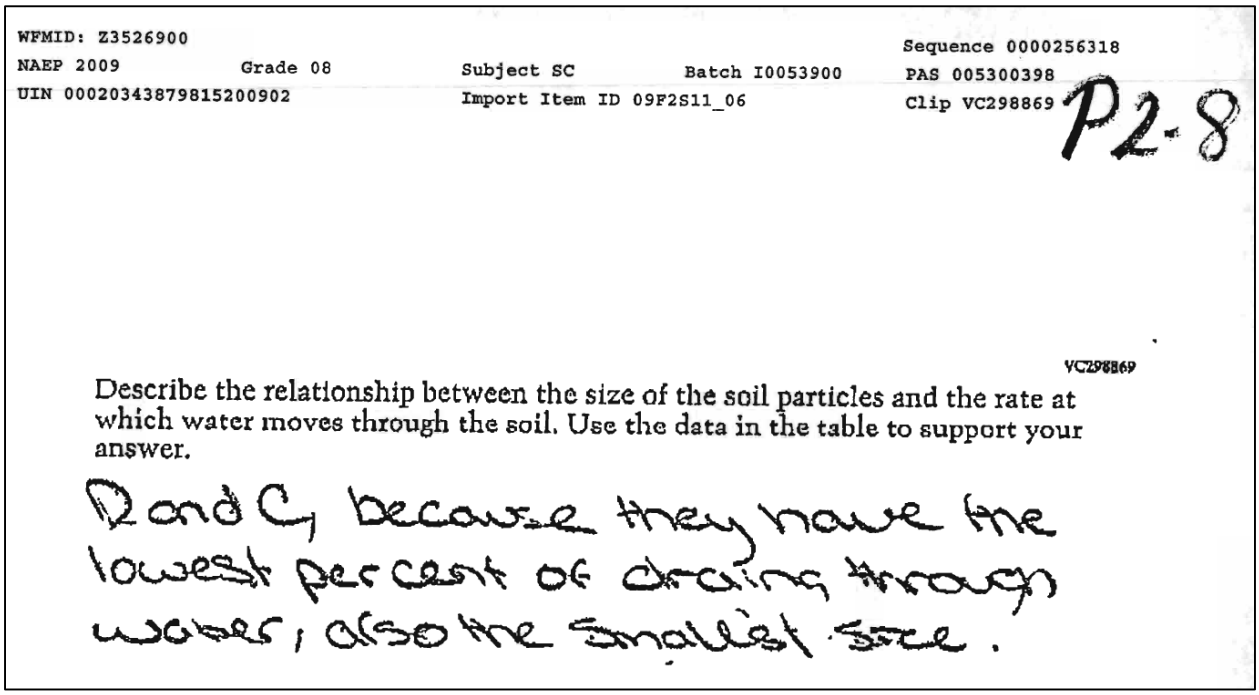
Clip VC298869

P2-7

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The bigger the soil, the more the water moves.



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Clip VC298869

P2-8

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

D and C because they have the lowest percent of draing through water, also the smallest size.

Practice Set 2 Repsonses ….p.5

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Clip VC298869

P2-9

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The More soil there is, the more water gets through. 100% has 21 cm/hr. 85%, however, only has 6.1 cm/hr.

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Clip VC298869

P2-10

VC298869

Describe the relationship between the size of the soil particles and the rate at which water moves through the soil. Use the data in the table to support your answer.

The relationship between the soil particles & the rate at which water moves is that the soil particle numbers are bigger than the rate of water. For example soil A is 100 & rate of water is 21.